

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 December 2004 (02.12.2004)

PCT

(10) International Publication Number
WO 2004/103419 A1

(51) International Patent Classification⁷: **A61L 24/00**

(21) International Application Number: PCT/GB2004/002179

(22) International Filing Date: 19 May 2004 (19.05.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 0311846.0 23 May 2003 (23.05.2003) GB

(71) Applicant (for all designated States except US): ORTUS MEDICAL LIMITED (a British Company of Needle Cottage) [GB/GB]; 74 Bath Green, Longwell Green, Bristol, BS30 9DG (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BARRALET, Jake [GB/GB]; 304 Franklin Road, Birmingham B30 1NE (GB). GBURECK, Uwe [DE/DE]; Schiestlstrasse 2, 97080 Wurzburg (DE). THULL, Roger [DE/DE]; Wald kugelweg 23, 97080 Wurzburg (DE).

(74) Agent: WARD, David, I.; Marks & Clerk, Alpha Tower, Suffolk Street Queensway, Birmingham B1 1TT (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

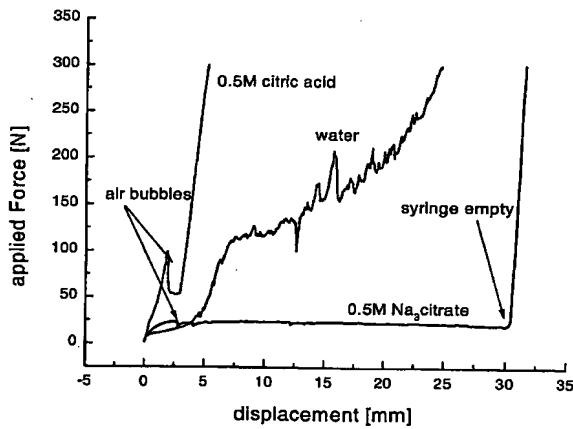
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: IMPROVED CALCIUM PHOSPHATE BONE CEMENTS



WO 2004/103419 A1

(57) **Abstract:** In a first aspect, the present invention discloses a self setting calcium phosphate cement comprising:- (i) a powdered component, said powdered component having an average particle size d_{50} of less than 15 μm , and (ii) a calcium phosphate based powder, said powder having an average particle size d_{50} greater than that of the powdered component, said powdered component and said calcium phosphate based powder being suspended in water containing a dissolved zeta potential increasing additive in sufficient quantity to increase the zeta potential of the suspended particles to at least 30 mV, and wherein the zeta potential increasing additive is chosen to be compatible with the setting pH of the same calcium phosphate cement without the zeta potential increasing additive. In a second aspect, the invention discloses a shelf-stable acidic setting cement powder comprising :- (i) a calcium phosphate based powder, and (ii) a powdered compound which, upon addition of water to form a cement paste, retards the cement setting reaction or increases the zeta potential of the resultant suspended particles to at least -30 mV.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.